this may be due to the fact that they have become parthenogenetic. The conjugation observed in *Saccharomycodes Ludwigii* by GUILLIERMOND, where the endospores conjugate before germination, may be only a secondary development introduced into parthenogenetic forms as a means of recuperation. "The existence of the conjugation preceding sporulation, coupled with the cytological character of the sporange, demonstrate in an evident manner the ascogenous nature of this organ, and one ought to consider with HANSEN that the Saccharomyces constitute an autonomous group belonging to the Ascomycetes and near to the Exoascaceae."—B. F. LUTMAN.

Heredity in micro-organisms.—Working with the yeast *Saccharomyces anomalus* and the bacteria *B. coli-communis*, *B. typhosus*, and *B. megatherium*, BARBER[12] has extended the investigations of HANSON, BEIJERINCK, CONN, MAYER, and others on such variation as may arise spontaneously from cells which vary independently of environment. The cells chosen were those showing a morphological difference from the parent, and the new races of descendants were tested further for biochemical differences. The problem of isolation was thus a much more difficult one than that of selection of bacterial "sports" in mass with physiological differences, such as that of a white colony among red pigmented ones. BARBER devised and describes an ingenious method for isolating single varying cells from a hanging drop under the microscope by means of a capillary tube, with apparatus for holding and adjusting it under the lens. A single cell drawn into this could be discharged into another hanging drop, placed in a sealed moist chamber, and its development and descendants watched for as many generations as necessary. With the yeast BARBER obtained in this way new races whose morphological characters (large, long cells) persisted over three years, such a new race successfully competing with the parent stock when mixed with it in culture. Attempts to further modify the race by selection failed. Much the same results were obtained with the bacteria. These varieties were true mutations, appearing suddenly with full-fledged characters, apparently independent of natural selection and comparable with sports among multicellular organisms. If physiological characters are correlated with morphological, as in the case of increased power of fermentation of one of BARBER'S races of *B. coli*, it seems probable that mutation may be a factor in the origin of increased virulence of some pathogenic bacteria.—MARY HEFFERAN.

Position of the nucleus.—KÜSTER[13] has made a rather extensive series of observations upon the relation between the position of the nucleus and cell growth and the formation of membranes. His conclusions differ from those of HABERLANDT, especially in reference to the position of the nucleus in root hairs and stomatal apparatus, and in cells undergoing local thickenings of the cell wall.

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[12] BARBER, MARSHALL A., On heredity in certain micro-organisms. Kansas Univ. Sci. Bull. **4**:3–48. *pls. 1–4.* 1907.

[13] KÜSTER, ERNST, Ueber die Beziehungen der Lage der Zellkernes zu Zellenwachstum und Membranbildung. Flora **97**:1–23. 1907.

While KÜSTER confirms HABERLANDT'S observations that the nucleus is usually near the tip of the rhizoid in many plants, he finds that in *Hydrocharis morsus-ranae*, and in many other plants of similar habitat, the nucleus is just as constantly at the base of the root hair. The suggestion is made that the position of the nucleus in root hairs may be a result of growth rather than a cause of it, or the position may be due to unknown factors.

In regard to the position of nuclei in the stomatal apparatus, KÜSTER is inclined to believe that the position of the nuclei of the neighboring cells is not related to the development of the guard cells, but rather that the position near the concave wall is due to physical factors which favor or compel this position. In many plants, like *Osmunda regalis*, when the neighboring cells are not crescent-shaped, the nuclei are not situated near the walls.

Although KÜSTER agrees with HABERLANDT that the nucleus is often found at the place where local thickenings of the cell wall are taking place, he also finds other instances where the nucleus is not so situated.

In these three classes of phenomena, KÜSTER regards HABERLANDT'S explanations as teleological. He himself, however, is not able to find a satisfactory explanation for the varying position of nuclei and he believes that the factors which determine it have not yet been discovered.—CHARLES J. CHAMBERLAIN.

Items of taxonomic interest.—J. N. ROSE (Smithson. Quarterly 50:32. 1907) has made additions to his synopsis of the Mexican species of Ribes and has described a new species; has proposed, in connection with J. H. PAINTER (*idem* 33–34), the new generic name *Morkillia* for *Chitonia* Moç. and Sessé (Zygophyllaceae), which is a homonym of *Chitonia* D. Don.; and has described (*idem* 63–64. *pl. 6*) a new Cactus from Guatemala, a species of the Melocactus type, to which he proposes to shift the generic name Cactus.—N. PATOUILLARD (Bull. Soc. Mycol. France 23:50–52. 1907) has described a new genus (*Le Ratia*) of hymenogasters from New Caledonia.—H. HARMS (Bot. Jahrb. 40:15–44. 1907), in his fourth paper on African Leguminosae, has described a new genus, *Englerodendron*.—R. HAMET (Bull. Soc. Bot. France 54:26–38, 52–76. *pl. 2*. 1907) has published a synopsis of the genus Drosera, recognizing 65 species, setting aside 4 as insufficiently known, and excluding 7.—S. BROWN (Torreya 7:125, 126. 1907) has described a new spruce (*Picea albertiana*) from the Canadian Rocky Mts., which had been referred to both *P. canadensis* and *P. mariana*.—A. ZAHLBRUCKNER (Ann. K. K. Naturh. Hofmus. 20:350. 1907), in centuries xii and xiii of his *Kryptogamae exsiccatae*, publishes a new lichen (*Rinodina iowensis*) from granite rocks near Fayette, Iowa.—J. M. C.

Vegetation in Somerset, England.—Following the lead of the late ROBERT SMITH, vegetation maps are multiplying in England. The latest is that of the Bath and Bridgewater district of Somerset, and is the work of C. E. Moss.[14]

[14] Moss, C. E., Geographical distribution of vegetation in Somerset: Bath and Bridgewater District. Publ. Roy. Geog. Soc. London. pp. 71. *figs. 24. colored map.* 1907.